Serial No.: 10/664,345
Docket No.: GP-302959

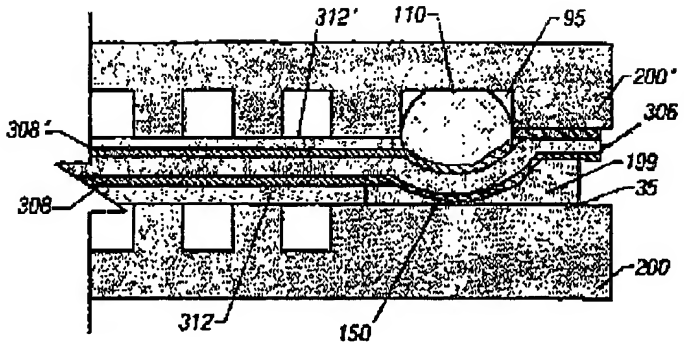
REMARKS

By this response, claims 1-20 have been cancelled, and new claims 21-40 have been presented. Accordingly, claims 21-40 are pending in this application.

In the Office Action, claims 5 and 12 were objected to for the noted informalities. These informalities have been taken care of by presentation of new claims 25 and 32, which incorporate the subject matter of now canceled claims 5 and 12, respectively. Withdrawal of these objections is respectfully requested.

In the Office Action, claims 1-6, 12, 19 and 20 were rejected as anticipated by Matlock et al., US 6,261,711 B1. Additionally, claims 7-11, 13 and 14 were rejected as obvious in view of Matlock et al., and claims 15-18 were rejected as obvious over Matlock et al. in view of Benz et al., US 6,408,966 B1. These rejections are respectfully traversed in view of the following comments.

In the Office Action, the Examiner errs in assuming that the catalyst layer 308 is sized by gasket 199 and cathode catalyst layer 308' is sized by gasket 110. See page 3, lines 4-5 of the Office Action. Nowhere in Matlock et al. is such a disclosure provided or suggested. In fact, contrary to the Examiner's assertion, Matlock et al. teach that "[a] fluid tight seal also can be formed between the groove of the cathode fluid flow plate, the gasket, the MEA (including the catalysts), the compressible insulator, and the surface of the anode fluid flow plate." See col. 5, lines 61-64. Accordingly, as taught by Matlock et al., in some locations of the PEM-type cell the following arrangement may be provided:



In view of the above noted disclosure of Matlock et al., the Examiner also errs in assuming that the anode catalyst layer has a surface area, in contact with the electrolyte, that is less than a surface area, in contact with the electrolyte, of the cathode catalyst layer. As Figure 7 of Matlock et al. is a cross-sectional view of a PEM-type cell, the relative sizes of the anode and cathode catalyst surface areas are neither disclosed nor suggested. As Matlock et al. is directed to providing a fluid seal for a fuel cell, there is just no information on the sizing of the anode and cathode catalyst surfaces extending in the hidden direction of FIGS. 7 and 8 (i.e., into and out of the page) , in which to define a surface area in contact with the electrolyte.

If, however, it is the position of the Examiner that Matlock et al. disclose inherently that the surface area of the anode catalyst layer is smaller than the surface area of the cathode catalyst layer, then the Examiner is reminded that inherency is predicated on the fact that anticipation cannot be avoided merely because an element is undisclosed and unrecognized in the reference, but is a deliberate or necessary consequence of the reference's disclosure. See DONALD S. CHISUM, CHISUM ON PATENTS § 3.03

(2004). Described another way, "an inherent disclosure flows naturally from the teachings of the prior art reference." In re Oelrich, 666 F.2d 578, 581 (C.C.P.A. 1981). In view of the differing teachings of Matlock et al. as mentioned above in regards to providing the fluid tight seal (e.g., col. 5, lines 48-64), having the surface area of the anode catalyst layer being less than the surface area of the cathode catalyst layer is not a deliberate or necessary consequence of the reference's disclosure. There is just no teaching or suggestion provided by Matlock et al. to require that the surface area of the anode catalyst layer be smaller than the surface area of the cathode catalyst layer.

Furthermore, in view of FIGS. 2 and 5, it would make no sense to one skilled in the art to have the anode catalyst layer 308 be sized by gasket 199 and cathode catalyst layer 308' be sized by gasket 110 as asserted by the Examiner. For example, the highlighted areas indicated below in reproduced FIG. 2 are holes. Accordingly, sizing the catalyst layers by the gaskets 110 and 199 such as indicated by FIG. 7, would block such holes. The holes are for carrying away generated water and thus if blocked would render the PEM-type cell inoperable.

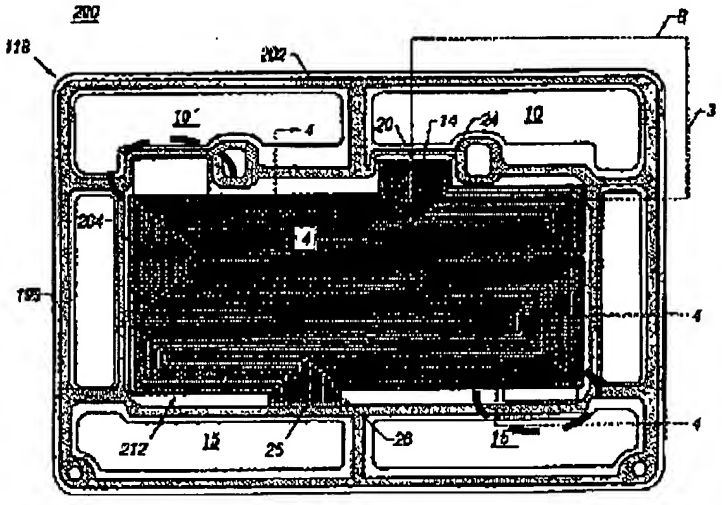


FIG. 2

Accordingly, each and every feature recited by the claimed invention is neither disclosed nor suggested, explicitly or inherently, by Matlock et al. Benz et al. is cited for teaching a vehicle comprising an electric drive system driven by a fuel cell system. Accordingly, the teachings of Benz et al. do not cure the above noted deficiencies in Matlock et al., and as such the combined teachings of these references would fail to teach or suggest the recited invention of the claims.

However, to make clear the distinctions of the present invention over the cited art, new claim 21 recites the limitations of "a cathode catalyst layer having a first set of edges and a first surface area perimeter; an anode catalyst layer having a second set of edges and a second surface area perimeter, said second surface area perimeter is entirely smaller than said first surface area perimeter." New independent claim 22 recites, *inter alia*, the limitation of "said anode catalyst layer has a surface area in contact with said ionomer which is less than a surface area of said cathode catalyst layer in contact with said ionomer." New independent claim 39 recites, *inter alia*, the limitation of "a total surface area of said anode catalyst layer is smaller than a total surface area of said cathode catalyst layer." As pointed out above, such limitations are neither disclosed nor suggested by Matlock et al. and Benz et al. individually or in combination. New claims 21-40 are based on the subject matter of original filed claims 1-20, respectively; no new matter has been entered.

In view of the above remarks and amendments, the Applicants respectfully submit that the present application is in condition for allowance. The Examiner is encouraged to contact the undersigned to resolve efficiently any formal matters or to discuss any aspects

of the application or of this response. Otherwise, early notification of allowable subject matter is respectfully solicited.

Respectfully submitted,

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